Computers and Internet
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This month we'll be taking a closer look at those ubiquitous hand-held computers commonly referred to as Personal Digital Assistants (PDAs). If you don't own one, you surely have at least heard of them - Palm Pilot, Handspring Visor, etc. While their intended use is admirable - a kind of catch-all for business folks on the go - us Hams have a way of warping reality and using common items far beyond their intended capabilities.

It would be very helpful for the remainder of this discussion to keep in mind that these little PDAs are much more than simple date books, address and to-do lists. The current generation of PDAs are in fact very powerful computers in their own right, incorporating a keyboard-like input device (which recognizes handwriting!), an LCD display capable of character and graphic display (some in color!), serial or USB I/O capabilities, a few Megabits of memory, simple sound capability, and a fairly powerful CPU (compare with a '386). Oh, yes - the best part is that they run off DC and have internal batteries as well.

Although my experiences, and therefore what I'll be writing about, are limited to the Palm Pilot Vx, I know that most of this applies to many other PDAs. Some PDAs are better for certain applications than others, and there are wide variations in capabilities and prices.

One simple application that comes immediately to mind is that of a dumb terminal for operating packet with a conventional TNC. When you're at home, you'll probably opt for the desktop PC, but what to do out in the field, during remote or emergency operations? A laptop PC has been a good choice, but these can get expensive, and they generally are not what one might consider 'ruggedized'. Of course, your average PDA has quite a bit more CPU power than necessary, which can be harnessed to simplify operations considerably.

A popular operating scheme for packet is APRS®. In case you've been in a cave for the past decade, the Automatic Position Reporting System was designed by Bob Bruninga WB4APR as a tactical aid in keeping track of multiple (ostensibly mobile) stations or objects. Have a look at <http://www.aprs.org> and <http://aprs.rutgers.edu/>. Each APRS station, which usually includes a GPS receiver, sends a position report every few minutes as a single UI (Unnumbered Information) packet frame. Other stations receive these packets, either directly or via 'dumb' digipeaters, and can plot locations and movement onto a map. APRS also supports simple one-line text messages. (There are new features being developed, for voice and image transfer, but that's out of our scope today).

Mike Musick, N0QBF has written an APRS application named pocketAPRS for the Palm Pilot and other compatible PDAs. Add a TNC and radio, and you have a complete APRS

station, including map displays. PocketAPRS is relatively large for a PDA application at 220k, but it is still plenty small enough to fit even when memory is at a premium.

I downloaded a trial copy of PocketAPRS from <http://www.pocketaprs.com>, made up the simple null modem necessary to be able to use the desktop HotSync adapter, and within 10 minutes I was able to see reports from local stations popping onto the map on my Palm's screen. I didn't take the time to connect a GPS receiver, nor did I actually transmit, but there's no doubt that both those exercises would be nearly as easy.

Like all of the APRS applications (dosAPRS, MacAPRS, WinAPRS, JavAPRS, xAPRS, etc.), PocketAPRS is shareware. The trial version is fully functional and never expires, but you can't save the configuration information (such as callsign, TNC type, etc). If you end up using it, the $40 registration fee is trivial when you think of how useful this software really is. It's worth it for the maps alone!

For the Palm Pilot series of PDAs, swing your web browser over to <http://www.palm.com> for a listing of tens of thousands of downloadable applications for your PDA. Most are not ham-related, but a search on a term like 'radio' brings up some useful items. Note that many of these downloads are not freeware, instead they are shareware and costware. I guess it depends on how important it is for you to have a particular application, and how tolerant you are of bugs.

For Amateur Radio related applications, the best site I've found is Peter Hodgson, VA3PKH's Amateur Radio and Palm OS site, <http://www.qsl.net/va3pkh/palm-ham.html>, with nearly a hundred links to PDA applications specifically for ham radio. All of the links mentioned below were found via this page. For the rest of this month's column, I'll offer some mini-reviews of some of the programs I downloaded and found 'cool'.

One of the first applications to catch my eye was Palm Globe. This very simple application shows you the Earth from above any selected position, with areas of day and night accurately depicted. You can select different twilight settings (theoretical, civil, nautical, etc). The resulting display is not only useful for predicting gray line DX propagation and local sunrise/sunset, it is also useful for impressing your colleagues. Visit <http://www2.hursley.ibm.com/pglobe/pglobe.html> for your copy.

A similar, but more sophisticated application is PocketSat. PocketSat allows you to select any number of satellites (limited to 5 in the trial version) and will calculate when these will be visible at your location. You select the date range, and a table of visible passes for the selected satellites will be calculated. This application really stretches the CPU power of my Palm Vx, taking about a minute to calculate a few day's worth of data for a single satellite. You get the date and time of the satellite's pass, along with details of where it will appear, how 'good' the pass will be, and you can even plot the satellite's track in the

sky. I used this, with an updated set of Keplerians, to predict when the International Space Station would be visible, and there it was, a large speck in the sky, just drifting past at 6:01 one Wednesday morning. Visit <http://www.bigfattail.com/pocketsat/index.html> to download a copy.

Once really started to use it, DotDash has helped me improve my CW abilities. DotDash is a neat little code learning and practice application. It will send (as audio tones) whatever text you write into it's transmit buffer, or random text, at speeds ranging from about 7 WPM to about 20 WPM. It includes modules to help you learn the Morse characters, and then provides training for your ears. One nice feature is a battery voltage display, to keep you from wearing out your Palm. Visit <http://break.org/gisle/PalmOS/>.

Palm Radio Log, or PRL, is one of many fast and easy logging applications available. I see these as coming in handy when operating mobile or from the wilderness. Some logging programs include an interface to your computer, so you can generate standard electronic logs for contest submissions. I like PRL's simple and quick input format, handy when you're juggling a microphone, tuning knob, and Palm Pilot in the back seat of the family van. The registered version comes with a companion Windows version, which increases the versatility of the program considerably. For example, you can generate Cabrillo logs. Visit <http://www.ke4iof.com/index.html>.

Then there are the document readers. Two that seem to stand out are AportisDoc and iSilo. Both are used as a convenient way to display and read relatively large documents. They both appear to read many of the same kinds of files: for example, the Extra class question pool or the AportisDoc user manual. Aportis Doc seems to be the more professional product of the two, coming with its own installation program, but this forces you to download a 1.2 MB file to get the 125kB reader program. iSilo has a much more convenient user interface for me, with a scroll bar on the right side to control movement in the document. Try them both! Visit <http://www.aportis.com> and look for AportisDoc Mobile, and visit <http://www.isilo.com/> for a copy of iSilo.

The folks at AOR <http://www.aorja.com/> were seen at Dayton last year using a PDA to operate PSK31 through one of their fine radios. Nearly any digital mode is fair game for a PDA. Text I/O capabilities are critical, as is portability and DC power, specifications that all PDAs share. Then, there's the folks at Shine Micro, and the future:

A posting on the TAPR NetSIG gave news about a DSP chip from Shine Micro <http://www.shinemicro.com/>. The SM2496DSP is a DSP-based modem, capable of emulating any existing Amateur Radio modem. It also includes an MP3 player, and given the power of the base DSP (a Texas Instruments 320C54xx), there's probably little it can't do. The SM2496DSP is aimed at the Handspring Visor, but there's no reason why it can't eventually be used on other PDAs - it's just a matter of time.

If we note that the Palm OS contains a well-developed, stable TCP/IP stack, then we see there's little standing in our way. Palm, Handspring and others have software developer's kits available. There are a few VT100 terminal emulators, as well as a Telnet client available today for downloading. What I see here is the next fertile ground for Amateur experimentation, using a PDA as the human-machine interface.

All this should have you convinced that those little PDAs are good for a lot more than just a to-do list. there is some powerful software out there, just waiting to make your life easier. And, as an added bonus, those darned PDAs really DO make good date books, phone and to-do lists as well. So, when the fun's over, you can still look up just what the XYL wanted you to get on the way home...

Until next time, 73
Don, N2IRZ

Captions

Figure 1: A Palm IIIc showing a sample pocketAPRS screen. It has the functionality of other APRS software, but fits in your pocket. Photograph courtesy of Mike Musick, N0QBF

Figure 2: A Palm Vx showing the PalmGlobe screen for my QTH. True to the display, it was twilight outside when this photo was taken.
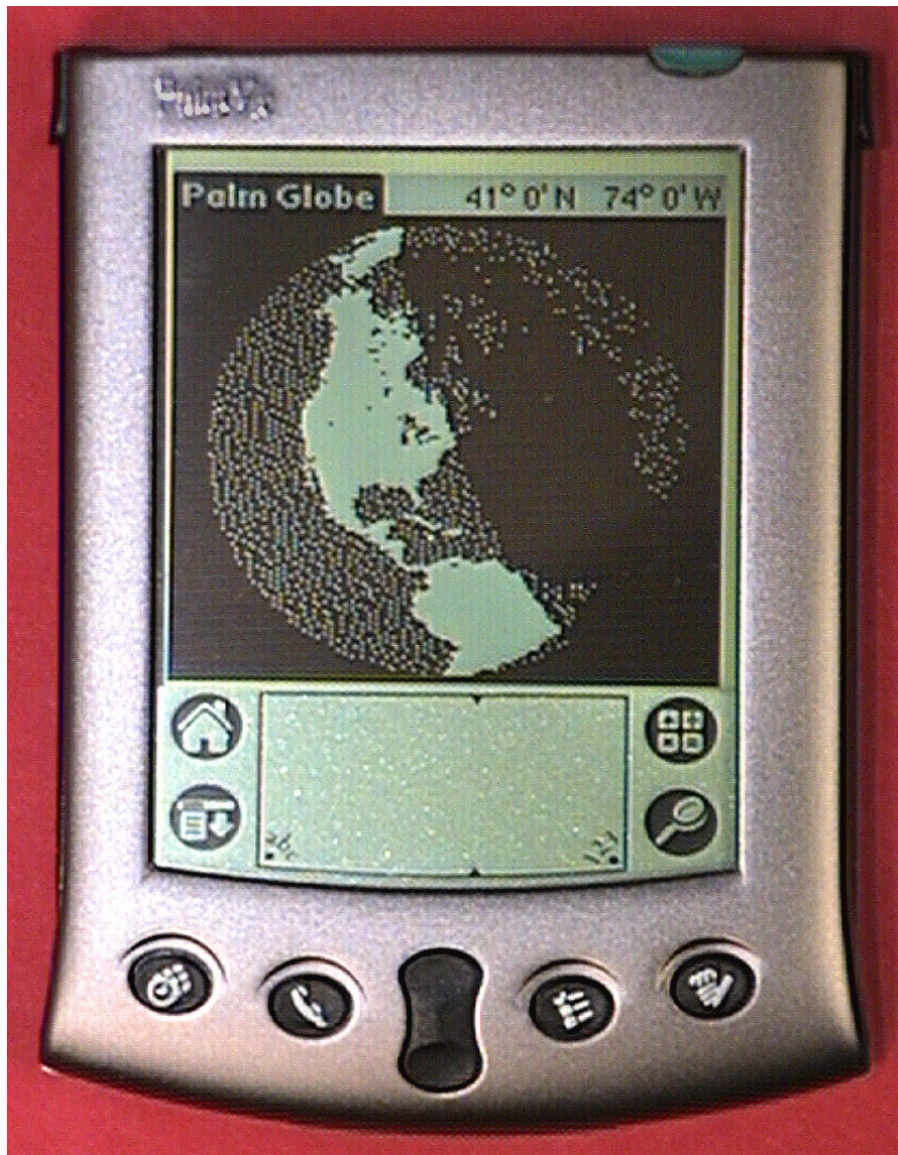
Figure 3: The Palm inside it's HotSync cradle. The cradle is used to transfer data between your computer and the Palm, via the RS-232 port. Shown on the screen is a table of International Space Station passes that will be visible from my QTH during March 2002, computed by PocketSat.

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